

Application No. 10/762,911

Reply to Office Action mailed November 3, 2005

**REMARKS**

These remarks are responsive to the Office Action mailed November 3, 2006. Claims 1-3 and 5-20 were pending at the time of the last examination. Claim 1 is amended. Claims 1-3 and 5-20 remain pending. Reconsideration of the application is respectfully requested in view of the following remarks. For the Examiner's convenience and reference, Applicants' remarks are presented in the order in which the corresponding issues were raised in the Office Action.

Please note that the following remarks are not intended to be an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the distinctions identified and discussed below are presented solely by way of example to illustrate some of the differences between the claimed invention and the cited references. In addition, Applicants request that the Examiner carefully review any references discussed below to ensure that Applicants' understanding and discussion of the references, if any, is consistent with the Examiner's understanding.

**I. Allowable Subject Matter**

The Examiner's continued allowance of claims 9-20 is appreciated.

The Examiner objects to claims 5-8 but states that these claims would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

In response, Applicants note that claim 5, which was formerly dependent upon independent claim 1, was rewritten in independent form in Applicants' Amendment "A" filed on December 6, 2004. Applicants believe that the present objection to claim 5 is based on an erroneous assumption in the Office Action that claim 5 remained dependent upon claim 1.

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Applicants therefore assume that claims 5-8 should be considered as allowable by the Examiner when examined independent of claim 1. As such, Applicants submit that independent claim 5, together with claims 6-8 that depend from claim 5, is allowable as written. Removal of the objection to these claims and allowance thereof is therefore respectfully solicited. If Applicants' understanding as stated above is incorrect, the Examiner is invited to contact the undersigned representative of Applicants in order to clarify the objection.

## II. PRIOR ART REJECTIONS

### A. Rejection Under 35 U.S.C. § 103

The Examiner rejects claims 1-3 under 35 U.S.C. § 103(a) as being unpatentable over *Yokouchi et al.* (U.S. Patent No. 5,973,339) in view of *Dauids et al.* (U.S. Patent No. 6,813,431).

Applicants traverse the Examiner's rejection for obviousness on the grounds that the cited references -- either individually or in combination -- fail to teach or suggest each and every element of the rejected claims. In particular, independent claim 1 requires, in an optical signal detector, the presence of an attenuating layer that is disposed between the detecting layer and the light source "such that the incident optical signal passes through *the substrate and the attenuating layer before being received by the detecting layer.*" Neither *Yokouchi* nor *Dauids* teaches such a device. Rather, each of the devices taught by *Yokouchi* and *Dauids* disclose structures that direct optical signals through waveguides and not through their respective substrates. This is seen, for example, in column 3, lines 14-15, 21-22, 27-31, and 59-62 of *Yokouchi*, which states:

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The photosensitive section 10 comprises an optical absorption layer 11.... The optical attenuation section 20 comprises an optical waveguide layer 21.... In these configurations, each of the photosensitive section 10 and the optical attenuation section 20 *forms a light confinement structure for confining the incident light* in the vertical and horizontal directions.

[A] signal light is transmitted through the optical attenuation section 20 to the photosensitive section 10 after attenuation of the optical power to a suitable level. (Emphasis added.)

The above quotes, together with inspection of Figure 2 of *Yokouchi*, make clear that light incident on the device of *Yokouchi* travels via a waveguide formed by the optical waveguide layer 21 and the optical absorption layer 11, and not through the substrate 30.

Similarly, the device of *Dauids*, as shown in Figure 6A for example, also includes a light-confining waveguide:

[W]avguide layer's 28 relatively high index of refraction and intermediate cladding layer's 24 relatively low index of refraction *helps to confine light transmitted through waveguide layer 28*.

Angle  $\phi$  is selected such that, in use, a mode traveling through waveguide layer 28 undergoes total internal reflection off beveled mirror 31 and is directed into thin silicon layer 12 through attenuating layer 18. (Emphasis added.)

*Dauids*, col. 3, ll. 32-35, 49-52. So configured, light entering the device of *Dauids* passes through waveguide layer 28 and is reflected into attenuating layer 18 and thin silicon layer 12 without first traveling through base layers 14 or 16. Note that this relationship between the waveguide attenuating layer and silicon layer is also seen in Figure 12C of *Dauids*, which was discussed in the Office Action. Thus, like *Yokouchi*, the device of *Dauids* fails to teach a

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detector configured such that an incident optical signal passes through a substrate before being received by a detecting layer, as claim 1 explicitly requires.

Thus, even a combination of *Yokouchi* with *Davids* fails to teach each and every element of the present claimed invention as set forth in claim 1. As such, Applicants submit that the Examiner has failed to set forth a *prima facie* case of obviousness and respectfully requests that the Section 103 rejection to claim 1 be withdrawn. Further, inasmuch as claims 2-3 depend on claim 1, they are also allowable for at least the reasons given above. Applicants therefore respectfully solicit the removal of the rejection to these claims under Section 103.

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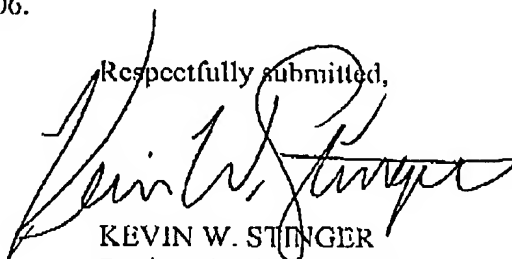
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CONCLUSION

In view of the foregoing, Applicants believe that claims 1-3 and 5-20 are in condition for allowance. In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, or which may be overcome by an Examiner's Amendment, the Examiner is requested to contact the undersigned attorney.

Dated this 3<sup>rd</sup> day of February, 2006.

Respectfully submitted,



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